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09/644,498	08/23/2000	Tuija Helina Salin-Nordstrom	2508.13US01	1667

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EXAMINER

NICHOLS, CHRISTOPHER J

ART UNIT	PAPER NUMBER
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1647

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/644,498

Applicant(s)SALIN-NORDSTROM, TUIJA
HELINA**Examiner**

Christopher J Nichols, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 65-89 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 65-89 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) 65-89 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Application, Amendments, and/or Claims

1. The Response and Amendment filed 17 February 2004 has been received and entered in full. Claims 1-64 have been canceled and claims 65-89 have been added.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Withdrawn Objections And/Or Rejections

3. The rejections of claims **1, 4-12, 24, 32, 38-43, 46-59, and 64** as set forth at pp. 2-10 ¶¶4-20 of the previous Office Action (20 November 2003) are *moot* in view of Applicant's cancellation of said claims (17 February 2004).

Claim Rejections - 35 USC § 112

4. Claims **65** and **77** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Specification as filed does not contain support for the limitation "a cell derived from a human neural progenitor cell". Therefore said limitation constitutes new matter in claims 65 and 77.

5. Claims 65-89 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for *a method to produce a population that includes neurons and/or oligodendrocytes, the method comprising the following steps:*

(a) preparing an in vitro cell culture consisting essentially of astrocytes derived from human neural stem cells;

(b) dissociating and plating said cell culture; and

(c) maintaining said culture in serum-free media and treated with bFGF plus heparin for at least one day,

thereby producing a population of cells that include neurons and/or oligodendrocytes in addition, said method can be used as a control step to identify other compounds that may exert a similar transdifferentiation effect on said astrocytes, does not reasonably provide enablement for *using other astrocytes, other cell types, or method steps not herein included.* The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to **make** or **use** the invention commensurate in scope with these claims.

6. The claims are drawn very broadly to methods of treating an *in vitro* cell culture comprising astrocytes and a second unspecified cell type with bFGF such that neurons and/or oligodendrocytes are produced. The language of said claims encompasses practicing the invention using any known types of astrocytes, from any source, at any stage of development in combination with “a cell derived from a human neural progenitor cell” which includes but is not limited to neurons, oligodendrocytes, and multipotent cell types.

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7. The Specification teaches that the cultures used in the Examples were astrocytes from human neural stem cell derived astrocytes (Example 6.1.1). Astrocytes derived from human neural stem cells were grown and maintained in the presence of 10% FCS (Fetal Calf Serum). The cells in cultures expressed no β -Tubulin III or MAP2ab indicating that there were no neuronal cells. More than 99% of cells expressed GFAP, indicating that they were astrocytes. A very low number, presumably approximately 1%, of the cells co-expressed O4 and CNPase indicating that a small number were oligodendrocytes (6.1.4; pp. 19).
8. The only guidance present in the Specification is that the cells were dissociated and plated on tissue culture plastic and cultured with 20 ng/mL bFGF plus heparin for 3 to 6 weeks. The cells were then transferred to Medium I, Medium II, or Medium III for 7 to 14 days on laminin-coated substrates. After 7 days in Medium I, II, or III, 60-80% of the cells were GFAP⁺ astrocytes. Up to 30% of the cells were β -tubulin III⁺, GFAP⁻ neurons (Figure 3A) and 5-10% of the cells were MAP2ab⁺. In Medium II and III, 0.5-2.0% of the cells were positive for the oligodendrocyte markers CNPase and O4. After 14 days in Medium I, II, or III, the amount of MAP2ab⁺ neurons was as high as 30% in high density cultures but 5% or less in low density cultures.
9. In a control set of cultures that were grown without exposure to bFGF and the in the presence of medium supplemented with serum instead of Medium I, II, or III. These cultures did not contain neurons as evidence by observations that there were no MAP2ab⁺ cells nor GFAP⁻ and β -tubulin III⁺ cells at any time point (pp. 22). A control culture was grown without exposure to bFGF, trypsinized, and then grown on laminin in Medium I or II or III. These cells were found

to be more than 99% GFAP⁺ astrocytes and no β -tubulin III⁺ and/or MAP2ab⁺ neurons were observed (pp. 22).

10. Therefore absent evidence to the contrary and in light of the complete lack of evidence for transdifferentiation in the prior art, it is clearly apparent that “immature” astrocytes, those newly derived from neural precursor cells, when treated with bFGF and heparin in serum-free media may form β -tubulin III⁺, MAP2ab⁺, GFAP⁺ neurons (9.0; Table I). The Specification also teaches that said method steps can be used as a control step for a screening method to identify compounds which cause “transdifferentiation” of said astrocytes.

11. However, the specification as filed fails to provide any guidance for the successful use of any “cell derived from a human neural progenitor cell”, a broad genus of cells which are as of yet undefined, other than astrocytes. Since resolution of the various complications in regards differentiation or transdifferentiation of astrocytes is highly unpredictable, as the multipotency/pluripotency of astrocytes is limited to “immature” or astrocytes from an early development stage (except for SVZ astrocytes), one of skill in the art would have been unable to practice the invention without engaging in undue trial and error experimentation.

12. In order to practice the invention using the specification and the state of the art as outlined below, the quantity of experimentation required to practice the invention as claimed would require the *de novo* determination of formulations with bFGF to correlate with successful production of a mixed cell culture. In addition, as discussed below, astrocytes are limited in their ability to produce other cells types (with the exception of SVZ astrocytes of which the Applicant has maintained that the instant astrocytes are not derived in previous Response filed 27 December 2002). In the absence of any guidance from the specification, the amount of

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experimentation would be undue, and one would have been unable to practice the invention over the scope claimed.

13. Additionally, a person skilled in the art would recognize that predicting the efficacy of using any astrocyte type based solely on the performance of a single type is highly problematic (see MPEP §2164.01). Thus, although the specification prophetically considers and discloses general methodologies of using the claimed methods using bFGF alone and any given astrocyte type or “cell derived from a human neural progenitor cell”, such a disclosure would not be considered enabling since the state of cell differentiation and transdifferentiation is highly unpredictable. The factors listed below have been considered in the analysis of enablement [see MPEP §2164.01(a) and *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)]:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

14. The following references are cited herein to illustrate the state of the art of astrocytes.

15. On the breadth of the claims, US 6,040,180 (21 March 2000) Johe teaches that maintaining and differentiating CNS stem cells (cells derived from a human neural progenitor cells) is neither predictable nor obvious to those skilled in the art (Col. 7 lines 53-60). Cells such

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as those derived from neural progenitor cells share properties with CNS stem cells which are notorious in the art as difficult to maintain and differentiate. Thus the scope of the claims is too broad and hence unwieldy for one skilled in the art to successfully practice to its full extent as written (see also Gage *et al.* (1995) "Isolation, Characterization, and Use of Stem Cells from the CNS." Annu. Rev. Neurosci. **18**: 159-162 for the broad plain meaning of "stem cell" and "progenitor cell" in the art).

16. On the nature of the invention, the instant application as presented broadly reads on using any bFGF on any astrocyte in such a manner as to transdifferentiate said astrocytes into neurons and/or oligodendrocytes. While is clear from the prior art that while some astrocytes are multipotent, not all astrocytes are {see Lee *et al.* (2000) "Gliogenesis in the Central Nervous System." Glia **30**: 105-121}. Further, it is also clear from the art that the FGF family of growth factors varies widely in its effects on the differentiation and/or growth of cells {see Bikfalvi *et al.* (1997) "Biological Roles of Fibroblast Growth Factor-2." Endocrine Reviews **18**(1): 26-45}. It is evident from the Specification as filed that the Applicant has used "young" or "immature" astrocytes derived directed from human neural precursor cells to practice the invention as demonstrated in 6.0 Example 1 of the instant Specification. Thus it became clear that the invention could be successfully practiced if using these "young" astrocytes as opposed to using adult astrocytes, with the exception of subventricular zone astrocytes (SVZ), are not multipotent {see Rao (1999) "Multipotent and Restricted Precursors in the Central Nervous System." The Anatomical Record (New Anat.) **257**: 137-148}. This has been demonstrated by Laywell *et al.* (5 December 2000) "Identification of a multipotent astrocytic stem cell in the immature and adult mouse brain." PNAS **97**(25): 13883-13888 who teaches that: "...astrocyte multipotency is

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restricted to early postnatal ages, except for SEZ astrocytes, which retain this ability in the mature brain.” (pp. 13883). The Applicant, however, maintained in previous Response/Amendment(s) that the term “astrocyte” should not be read as included SEZ astrocytes nor does the Specification teach the use of said astrocyte subpopulation. Therefore only astrocytes derived directly from human neural precursor cells in vitro can be used to practice the instant invention as shown in the instant Specification and confirmed by Laywell *et al.* to exhibit multipotency.

17. On the state of the prior art, Gaul and Lübbert (1992) “Cortical astrocytes activated by basic fibroblast growth factor secrete molecules that stimulate differentiation of mesencephalic dopaminergic neurons.” Proceedings of the Royal Society of London **249**(1324): 57-63 teach that treatment of an astrocyte culture with 50 ng/mL of bFGF resulted in reactive gliosis and not transdifferentiation. Thus the prior art teaches that the invention is not viable with any given astrocyte culture as the cultures used by Gaul and Lübbert were from rat cortices. Further, Richards *et al.* (15 September 1992) “*De novo* generation of neuronal cells from the adult mouse brain.” PNAS **89**(18): 8591-8595 teaches that bFGF treatment of brain cultures containing the cerebral cortex, hippocampus, diencephalons, striatum, and septum when treated with bFGF produced cells with neuronal morphology (pp. 8591). It is noted that the instant invention, as broadly claimed, would encompass astrocytes from these areas but the prior art does not teach that bFGF treatment lead astrocytes to produce the neuronal cells, but progenitor cells (pp. 8594). Further, cultures maintained in serum did not yield any neurons. It is also noted that the large brain sections include the subventricular zone (SVZ) an area known to harbor multipotent astrocytes and other progenitor cells. In addition, Raad *et al.* (October 1991) “Astrocyte-derived

TGF- β 2 and NGF Differentially Regulate Neural Recognition Molecule Expression by Cultured Astrocytes.” The Journal of Cell Biology 115(2): 473-484 teaches that treatment of immature and mature rat astrocytes with bFGF, among other growth factors, affects N-CAM and AMOG expression but does not provide support for transdifferentiation of said astrocytes upon treatment with bFGF (Figures 1, 3, and 4).

18. On the predictability in the art, Sweetnam *et al.* (July 1991) “Differential Effects of Acidic and Basic Fibroblast Growth Factors on Spinal Cord Cholinergic, GABAergic, and Glutamatergic Neurons.” Journal of Neurochemistry 57(1): 237-249 teaches that astrocyte cultures procured from embryonic day 12.5 Sprague-Dawley rats do not form neurons, oligodendrocytes, multipotent cell types, or second cell types when treated with aFGF (also known as FGF-1) and bFGF (also known as FGF-2) (Figures 6 and Table 1). Both FGF family members were mitogenic with aFGF increasing the thickness and branching of GFAP filaments (pp. 245). In addition, Morrison *et al.* (September 1988) “Basic fibroblast growth factor and epidermal growth factor exert differential trophic effects on CNS neurons.” Journal of Neuroscience Research 21(1): 71-79 teaches that treatment of primary cultures of astrocytes treated with 0.1, 0.5, 1.0, and 5.0 ng/mL of bFGF proliferated in a dose-dependent manner but did not produce any other cell types (Table I). Thus based on the prior art one skilled in the art would predict that FGF treated astrocytes would proliferate and increase GFAP intensity.

19. On the amount of guidance in the prior art, Walicke and Baird (1 May 1988) “Neurotrophic effects of basic and acidic fibroblast growth factors are not mediated through glial cells.” Developmental Brain Research 468(1): 71-79 teaches the establishment of an astrocyte culture from cerebral cortices of 1-3 day old rat pups which were grown in culture and

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dissociated (pp. 72). These astrocyte cultures are then maintained in serum-free DMEM and treated with 0.1 pg/mL to 1000 pg/mL of FGF which lead to their proliferation (Figure 1).

Walicke and Baird, however, do not teach that this demonstration of an embodiment of the invention as claimed lead to the production of neurons, oligodendrocytes, multipotent cells, or “second cell types”.

20. Thus the specification of the instant application fails to provide adequate guidance for one of skill in the art to overcome the unpredictability and challenges of differentiating astrocytes to produce a population of cells that include neurons and/or oligodendrocytes as exemplified in the references herein.

21. Claims 65-89 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

22. The independent claims require “a cell derived from a human neural progenitor cell” but do not require that the cell to possess any particular conserved structure, or other distinguishing feature, such as a specific biological activity. Thus, the claims are drawn to a genus of cells defined only by its origin.

23. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making

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the claimed product, and any combination thereof. In this case, the only factor present in the claim that is sufficiently disclosed is a recitation of astrocytes derived from human neural progenitor cells per Example 1.0. The specification does not identify any particular portion of the structure that must be conserved, nor does it provide a disclosure of structure/function correlation. The distinguishing characteristics of the claimed genus are not described.

Accordingly, the specification does not provide adequate written description of the claimed genus.

24. To satisfy the written-description requirement, the specification must describe every element of the claimed invention in sufficient detail so that one of ordinary skill in the art would recognize that the inventor possessed the claimed invention at the time of filing. *Vas-Cath*, 935 F.3d at 1563; see also *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 [41 USPQ2d 1961] (Fed. Cir. 1997) (patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that “the inventor invented the claimed invention”); *In re Gosteli*, 872 F.2d 1008, 1012 [10 USPQ2d 1614] (Fed. Cir. 1989) (“the description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed”). Thus, an applicant complies with the written-description requirement “by describing the invention, with all its claimed limitations, not that which makes it obvious,” and by using “such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention.” *Lockwood*, 107 F.3d at 1572.

25. See *University of Rochester v. G.D. Searle & Co.*, 68 USPQ2d 1424 (DC WNY 2003) and *University of Rochester v. G.D. Searle & Co. et al.* CAFC [(03-1304) 13 February 2004]. In *University of Rochester v. G.D. Searle & Co.* a patent directed to method for inhibiting

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prostaglandin synthesis in human host using an unspecified compound, in order to relieve pain without side effect of stomach irritation, did not satisfy written description requirement of 35 U.S.C. §112, since the patent described the compound's desired function of reducing activity of the enzyme PGHS-2 without adversely affecting PGHS-1 enzyme activity, but did not identify said compound, since invention consists of performing "assays" to screen compounds in order to discover those with desired effect. The patent did not name even one compound that assays would identify as suitable for practice of invention, or provide information such that one skilled in art could identify suitable compound. And since specification did not indicate that compounds are available in public depository, the claimed treatment method cannot be practiced without compound. Thus the inventors cannot be said to have "possessed" claimed invention without knowing of a compound or method certain to produce compound. Thus said patent constituted an invitation to experiment to first identify, then characterize, and then use a therapeutic a class of compound defined only by their desired properties.

26. Therefore the full breadth of the claim fails to meet the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

27. Claims **65-71, 73-83, and 85-89** are rejected under 35 U.S.C. 102(b) as being anticipated by US 5, 753,506 (19 May 1998) Johe (**IDS**).

28. The claims require an *in vitro* culture comprising astrocytes and a cell derived from a human neural progenitor cell. No specific limitations are placed on the astrocyte or the cell derived from the progenitor cell. The use of open claim language does not preclude the inclusion of other cell types. The claims also do not specify from which, the astrocyte or the other cell, that the neurons and/or oligodendrocytes arise.

29. US 5,753,506 teaches a method of producing a population of neurons and/or oligodendrocytes from a cell culture comprising four essential steps: (1) initial dissociation of cells, from embryonic or adult human brain, both known to contain both astrocytes as well as being composed of cells derived from human neural progenitor cells by definition, by mechanical trituration to establish the cell culture (synonymous with "*in vitro*"), (2) supplying 10 ng/mL bFGF to said culture for at least 1 day, (3) passaging the cells every 4 days after plating, and (4) washing said culture with Hank's buffered saline solution thereby to produce a population of cells including neurons and/or oligodendrocytes thus meeting the limitations of claims 65, 66, 68, and 75 (Col. 6, 11-12).

30. US 5,753,506 also teaches a method step wherein the bFGF is removed and the culture is maintained in its absence thus meeting the limitations of claims 69 and 81 (Col. 12).

31. US 5,753,506 teaches the method using DMEM/F12 medium, a mixture of DMEM and F12 media thus meeting the limitations of claims 70 and 71 (Col. 13). The Examiner notes that in the Response filed 17 February 2004, the Applicant asserted, "a person of ordinary skill in these arts is able to determine what cell culture media may reasonably be used". Therefore the

limitations of claims 70, 71, 82, and 83 are not given patentable weight absent evidence that their use is essential to practice the invention as claimed.

32. US 5,753,506 teaches an embodiment of the method wherein said cell culture is grown on plastic tissue culture plates precoated with poly-L-ornithine thus meeting the limitations of claims 74 and 86 (Col. 13).

33. US 5,753,506 teaches an embodiment of the method wherein said cell culture is maintained in bFGF for 10 days thus meeting the limitations of claims 67 and 79 (Col. 14).

34. US 5,753,506 teaches an embodiment of the method wherein said cell culture is maintained in CNTF, a neurotrophin, GDNF, heparin, and/or BDNF thus meeting the limitations of claims 73, 76, 85, 88, and 89 (Col. 17; Table VI; Claims 1 & 14).

35. US 5,753,506 teaches an embodiment of the method wherein it is practiced in a screening method for novel growth factors thus meeting the limitations of claims 77 and 78 (Col. 22-23).

Summary

36. No claims are allowed.

37. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

38. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Christopher James Nichols, Ph.D.** whose telephone number is **(571) 272-0889**. The examiner can normally be reached on Monday through Friday, 8:00 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Gary Kunz, Ph.D.** can be reached on **(571) 272-0887**.

The fax number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

CJN
May 10, 2004

Elizabeth C. Kemmerer

ELIZABETH KEMMERER
PRIMARY EXAMINER